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REMARKS**I. Introductory Comments**

In the Office Action, the Examiner: (1) withdrew claims 31-52 from further consideration pursuant to 37 CFR §1.142(b); (2) objected to the title of the application; (3) and rejected claims 1-30, 53, and 54 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,122,361 to Gupta (hereinafter "Gupta").

In this Amendment: Applicants have amended the title of the application; independent claims 30, 53, and 54 have been amended to further articulate novel aspects; and claims 31-52 have been cancelled without prejudice. No claims have been added. After entry of these amendments, claims 1-30, 53, and 54 will be pending in the application. Applicants respectfully request reconsideration of the presently pending claims based on the amendments to the claims and for the reasons provided below.

II. Restriction Requirement

On page 2 of the Office Action, the Examiner found that the examination of the non-elected claims 31-51 would impose a "further burden on the Examiner to search detailed structures of grammars." The Examiner made the restriction requirement final and withdrew claims 31-51 from examination on the merits. While Applicants continue to disagree with the restriction requirement, Applicants have nevertheless cancelled claims 31-51 without prejudice and reserve the right to file a divisional patent application directed to the subject matter of the cancelled claims.

III. Objection to the Specification

On page 2 of the Office Action, the Examiner objected to the specification because "[t]he title of the invention is not descriptive." Applicants have amended the title of the application to read SYSTEMS AND METHOD FOR PROVIDING AUTOMATED DIRECTORY ASSISTANCE USING TRANSCRIPTS. Based on the amended title, Applicants respectfully request that the Examiner withdraw the objection to the specification.

IV. Rejection of Claims 1-30, 53, and 54 under 35 U.S.C. §102(e)

On page 3 of the Final Office Action, the Examiner rejected claims 1-30, 53, and 54 under 35 U.S.C. §102(e) as being anticipated by Gupta. Claims 1, 17, 29, 30, 53, and 54 are independent claims. "A claim is anticipated only if each and every element as set forth in the

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claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). See M.P.E.P. § 2131. For the reasons discussed below, Gupta fails to meet this requirement because each and every claim element recited in claims 1-30, 53, and 54 is not disclosed in Gupta, and therefore Applicants respectfully traverse the rejections of these claims.

A. Independent Claims 1, 17, and 29

Independent claims 1, 17, and 29 each recite claim limitations that are not disclosed in Gupta. Claim 1 recites:

1. An automated directory assistance system, comprising:
a speech recognition module configured to receive an audible request for a telephone number from a caller and generate a transcript from the audible request;
a listing retrieval module configured to retrieve at least one listing corresponding to the audible request from a database using the transcript; and
an accept/reject module configured to determine whether to accept one or more of the listings retrieved by the listing retrieval module and present a telephone number corresponding to the accepted one or more listings to the caller. (Emphasis added.)

Similarly to claim 1, independent claims 17 and 29 recite the claim limitations of generating a transcript from an audible request, using the transcript to retrieve a listing, and presenting a telephone number corresponding to the listing to a caller. For the reasons discussed below, Gupta does not disclose these claim limitations.

1. Generating a transcript

On page 3 of the Office Action, the Examiner relies upon column 6, lines 35-50 of Gupta to reject the claim limitation of generating a transcript from an audible request. However, this section of Gupta does not contain any mention of a transcript, much less of generating a transcript from an audible request. As disclosed in Applicants' specification, transcripts may be generated from audible requests using loose grammars to recognize words spoken by a caller (e.g., see page 19, lines 11-17 of the specification). Because the loose grammars may be produced from training transcripts and directory listings, the generation of transcripts allows the disclosed directory assistance systems to facilitate automated directory assistance for large numbers of listings by using large vocabulary recognition techniques for both recognition and verification of requested listings (see page 18, line 1 to page 19, line 17 and page 26, lines 2-4 of the Specification). Moreover, the use of transcripts provides flexibility by permitting automated directory assistance even when a caller's request is phrased in a slightly novel way (See page 26, lines 5-6 of the Specification).

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In contrast to the use of transcripts, the section of Gupta cited by the Examiner discloses a conversion of a spoken utterance into an electrical signal for transmission from a telephone to a speech recognition unit (Gupta, col. 6, lines 35-37). The electrical signal is segmented, normalized, and parameterized (Gupta, col. 6, lines 40-43). A search is then performed to find possible matches of the audible request in a speech recognition dictionary (col. 6, lines 45-50). However, the electrical signal disclosed in this section of Gupta is an electrical audio signal representative of the audible request, as evidenced by the description at col. 6, line 51 to col. 7, line 17 of Gupta, which discusses how short segments (i.e., frames having duration ranges from 5-20 milliseconds) of the signal are processed at the pre-processing unit 102. Moreover, Gupta repeatedly discloses that the speech recognition is performed using acoustical characteristics and speech processing to find a match (e.g., see Gupta, col. 2, lines 28-32; col. 2, lines 45-49; and col. 7, lines 21-22). Thus, Gupta does not contain any teaching of generating a transcript from an audible request, as recited in claims 1, 17, and 29.

2. Using the transcript to retrieve a listing

Gupta also fails to disclose the claim limitation of retrieving a listing by using a transcript. On page 3 of the Office Action, the Examiner relies upon blocks 404-406 of Figure 3 of Gupta to reject this claim limitation. However, neither blocks 404-406 nor the corresponding description contain any disclosure of using a transcript to retrieve a listing. In contrast, block 404 of Gupta discloses a step for obtaining data for a called number, and block 406 of Gupta discloses a step for determining whether the called number is any one of a specific plurality of different telephone numbers that can be dialed to access Gupta's directory service system (Gupta, Figure 3 and col. 11, lines 17-26). If one of the specific telephone numbers for the directory service has been dialed, then the system of Gupta uses locality probability tables to recognize and prioritize localities that might be associated with an audible request (Gupta, steps 408-418 of Figure 3). In this manner, the system of Gupta is able to use an area code and/or a prefix associated with a telephone number to assist in recognizing a locality that was audibly provided as part of an audible request to Gupta's directory service.

Inasmuch as the Examiner appears to rely upon the dictionary lists of localities disclosed in Gupta to reject the claim limitation of a "listing," the lists of localities cannot also be used to reject the claim limitation of a transcript. On the other hand, if the Examiner intends to use Gupta's lists of localities to reject the claim limitation of a transcript, Gupta does not include any disclosure of a "listing." Either way, Gupta does not disclose each and

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every element of the claim limitation of using a transcript to retrieve a listing. Even if the lists of localities disclosed in Gupta could somehow be equated to the "listing" as claimed, Gupta still does not contain any disclosure of using a transcript to retrieve a listing.

3. Presenting a telephone number corresponding to the listing to a caller

Gupta also entirely fails to disclose the claim limitation of presenting a telephone number corresponding to the listing to a caller. On page 3 of the Office Action, the Examiner relies upon blocks 416 and 418 of Figure 3 of Gupta to reject this claim limitation. However, neither block 416 nor 418 discloses the presenting of a telephone number corresponding to a listing to a caller. In contrast, step 416 of Gupta discloses only a re-ordering of a list of localities based on a locality-based, calculated compound probability. At step 418 of Gupta, the top three candidates of the list are selected. The re-ordering and selecting of list entries at steps 416-418 do not in any way amount to the presenting of a telephone number corresponding to a listing to a caller. Gupta does not disclose this claim limitation because the system of Gupta is limited to a speech recognition technique that uses localities and probabilities to enhance the accuracy of a directory service system.

For at least the foregoing reasons, Gupta does not disclose each and every claim limitation recited in independent claims 1, 17, and 29. Therefore, Applicants respectfully request that the Examiner withdraw the rejections of these claims, which are in condition for allowance. Claims 2-16 and 18-28 are also in condition for allowance as claims depending, respectively, from independent claims 1 and 17.

B. Independent Claim 30

On page 3 of the Office Action, the Examiner rejected independent claim 30 by relying upon the same sections of Gupta that were used to reject independent claims 1, 17, and 29, as discussed above. Applicants have amended independent claim 30 as follows:

30. (Currently Amended) A computer-readable medium that stores instructions executable by at least one processor to perform a method for providing directory assistance, comprising:
recognizing at least one word in an audible request for a telephone number received from a caller;
generating a transcript from the audible request;
retrieving at least one listing corresponding to the audible request from a database using the at least one word transcript as a query into the database;
determining whether to accept one or more of the retrieved listings;
and
presenting a telephone number corresponding to the accepted one or more listings to the caller.

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As shown above, independent claim 30 as amended includes the claim limitations of generating a transcript from an audible request, retrieving a listing by using the transcript as a query to a database, and presenting a telephone number corresponding to the listing to a caller. Therefore, amended claim 30 is in condition for allowance for the same reasons discussed above in relation to independent claims 1, 17, and 29, and Applicants respectfully request that the Examiner withdraw the rejection of claim 30.

C. Independent Claim 53

On page 3 of the Office Action, the Examiner rejected independent claim 53 by relying upon the same sections of Gupta that were used to reject independent claims 1, 17, and 29, as discussed above. Applicants have amended independent claim 53 as follows:

53. (Currently Amended) A method for providing a directory assistance service, comprising:
receiving a request for a telephone number from a caller, the request being spoken by the caller and including a location and listing corresponding to the telephone number;
using large vocabulary speech recognition to recognize at least one word spoken by the caller when making the request;
generating a transcript from the at least one word;
using statistical information retrieval and the transcript to identify a listing corresponding to the recognized word;
determining whether the listing is likely to be correct; and
providing a telephone number corresponding to the listing to the caller.

As shown above, independent claim 53 as amended includes the claim limitations of generating a transcript from at least one word, using the transcript to identify a listing corresponding to the recognized word, and providing a telephone number corresponding to the listing to a caller. Therefore, amended claim 53 is in condition for allowance for the same reasons discussed above in relation to independent claims 1, 17, and 29, and Applicants respectfully request that the Examiner withdraw the rejection of independent claim 53.

D. Independent Claim 54

On page 3 of the Office Action, the Examiner rejected independent claim 54 by relying upon the same sections of Gupta that were used to reject independent claims 1, 17, and 29, as discussed above. Applicants have amended independent claim 54 as follows:

54. (Currently Amended) A method for providing a directory assistance service, comprising:
receiving a request for a telephone number from a caller, the request being spoken by the caller and including a location and listing corresponding to the telephone number;
using large vocabulary speech recognition to recognize at least one word spoken by the caller when making the request;

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generating a transcript from the at least one word;
using statistical information retrieval and the transcript to identify a
listing corresponding to the recognized word; and
connecting the caller to a called party corresponding to the listing.

As shown above, independent claim 54 as amended includes the claim limitations of generating a transcript from the at least one word and using the transcript to identify a listing corresponding to the recognized word. Therefore, amended claim 53 is in condition for allowance for the same reasons discussed above in relation to independent claims 1, 17, and 29. Moreover, amended claim 54 includes the limitation of connecting the caller to a called party corresponding to the listing. Gupta does not include any disclosure of this claim limitation. Therefore, Applicants respectfully request that the Examiner withdraw the rejection of independent claim 54.

E. Dependent Claims Not Anticipated by Gupta

As mentioned above, dependent claims 2-16 and 18-28 are in condition for allowance as claims depending from independent claims 1 and 17. Nevertheless, these dependent claims also recite independently patentable subject matter. Merely by way of example, claims 9, 10, 13, 14, 16, 18, 25, 26, and 28 recite patentable subject matter.

1. Claim 9

Claim 9 recites "a training system configured to automatically configure the speech recognition module, the listing retrieval module, and the accept/reject module." (Emphasis added.) On page 4 of the Office Action, the Examiner rejects claim 9 by interpreting Gupta to teach a training system that uses "orthographies that are configured/trained by certain utterances based on geography (col. 2, line 6-25) or as a first pass search (col. 2, lines 45-50, and col. 12, lines 38-44)." Applicants respectfully disagree with the Examiner's interpretation of Gupta as used to reject claim 9 because Gupta's system is directed to weighing potential matches of a spoken utterance based on geography and does not include any disclosure of automatically training the system. Gupta's system uses a first-pass search to score database entries (orthographies) based on the probability that the entries are a match to an utterance spoken by a caller (Gupta, col. 2, lines 45-49). The first-pass search uses only acoustical characteristics to generate probability scores for the potential matches (Gupta, col. 2, lines 48-49). A second step then alters the probability scores based on geographical information related to the caller's location (Gupta, col. 2, lines 50-58). The top-scoring potential matches are then selected for submission to a more detailed acoustical match analysis (Gupta, col. 3, lines 54-59). Thus, Gupta discloses a three-step process for matching

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orthographies in a database to a spoken utterance. As understood by Applicants, each of the three steps preformed by the system of Gupta is directed to finding a match for a spoken utterance and not to training the system.

The closest Gupta comes to any sort of configuration of a directory assistance system is a disclosure of data elements containing geographically based probabilities derived based on call records of prior directory assistance transactions (Gupta, col. 2, lines 58-67 and col. 12, lines 61-65). In other words, observed calling patterns can be used to weigh acoustical match probability scores. However, there is no disclosure in Gupta of the call records being used to train the directory assistance system. The simple use of call pattern data to weigh probability scores does not equate to the training of a system. Moreover, there is no disclosure in Gupta of the call patterns being used to automatically configure the directory assistance system. Thus, Gupta likely falls under the prior art described in the Background section of the application, which prior art requires intensive manual labor to set up a directory assistance system (Applicants' specification, page 1, lines 13-22).

For the foregoing reasons, Gupta fails to disclose a training system configured to automatically configure the modules of the claimed automated directory assistance system, as recited in claim 9. Therefore, Applicants respectfully request that the Examiner withdraw the rejection of claim 9, as well as the rejections of all claims depending from claim 9 (claims 10-16).

2. Claims 10 and 18

Claims 10 and 18 recite the claim limitation of estimating acoustic models from training transcripts relating to requests for telephone numbers. On page 3 of the Office Action, the Examiner rejects claims 10 and 18 by interpreting column 2, lines 28-32 to teach the use of "acoustics and grammar models." However, the Office Action fails to consider the use of training transcripts as recited in claims 10 and 18. Moreover, as discussed above, Gupta does not disclose the use of transcripts as claimed, much less the use of training transcripts. Therefore, Gupta fails to disclose each and every claim limitation recited in claims 10 and 18, and Applicants respectfully request that the Examiner withdraw the rejections of these claims.

3. Claims 13 and 25

Claims 13 and 25 recite the claim limitation of automatically generating training transcripts corresponding to prior requests for telephone numbers. On page 4 of the Office Action, the Examiner rejects claim 25 by interpreting column 2, lines 28-32 of Gupta to teach

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the use of probability statistics. Applicants fail to see any relevance of this section of Gupta as applied to claim 25 because claim 25 does not recite "probability statistics."

On page 5 of the Office Action, the Examiner rejects claim 13 by interpreting blocks 408 and 412 of Figure 3 of Gupta as teaching the generating of transcripts based upon *a priori* probabilities and histograms. However, *a priori* probabilities and histograms, as disclosed in Gupta, do not in any way amount to a disclosure of generating a transcript. At step 408 of Gupta, it is determined whether a histogram exists for a particular combination of an area code and a prefix code (NPA-NXX) (Gupta, col. 11, lines 26-29). As disclosed in Gupta, a histogram is a data structure containing probability values for different localities (Gupta, col. 9, lines 52-57). At step 412 of Gupta, the histogram is searched for a probability value associated with a specific locality (Gupta, col. 11, lines 40-41). If the search is successful, the *a priori* probability value is obtained for use in computing a weighted probability value (compound probability) (Gupta, col. 11, lines 41-52). The simple obtaining of a locality-based probability value for use in weighing an initial probability value does not in any way amount to the generation of a transcript, much less the generation of a training transcript. As discussed above, Gupta is directed to improving accuracy of acoustical matching by using locality probabilities to weigh acoustical match probabilities. Not only does Gupta fail to disclose the generation of a transcript, Gupta's teachings are limited to the application of a locality-based weighing system and do not contain any disclosure of training the system.

For the foregoing reasons, Gupta does not disclose each and every element recited in claims 13 and 25, and Applicants respectfully request that the Examiner withdraw the rejections of these claims, as well as the rejections of claims 14-16 and 26-28, which depend from claims 13 and 25.

4. Claims 14 and 26

Claims 14 and 26 also recite the claim limitation of generating a training transcript. On pages 3 and 5 of the Office Action, the Examiner relies upon column 2, lines 28-32 to reject claims 14 and 26. For the same reasons discussed above, Gupta does not disclose the generation of transcripts as claimed, let alone the generation of training transcripts. Therefore, Gupta fails to disclose each and every claim limitation recited in claims 14 and 26, and Applicants respectfully request that the Examiner withdraw the rejections of these claims.

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5. Claims 16 and 28

Claim 28 recites the claim limitation of presenting a generated transcript to a human for verification or modification. On page 4 of the Office Action, the Examiner relies upon column 8, line 65 to col. 9, line 3 to reject claim 28. However, this section of Gupta does not disclose the presentation of a transcript to a human, but is limited to passing a matter to a human directory assistance operator as a default procedure when the automated system of Gupta fails to produce a match with a probability score above a preset threshold. This does not amount to a disclosure of presenting a transcript to a human as recited in claim 28, at least because Gupta does not disclose a transcript, as discussed above. Moreover, there is no disclosure in Gupta of a human performing a verification or modification of a transcript. Rather, the entire request appears to be turned over to a human operator when the system of Gupta fails to automatically produce an accurate match.

Claim 16 recites the claim limitation of presenting the generated training transcript to a human for verification or modification. On page 5 of the Office Action, the Examiner relies upon column 8, line 60 to col. 9, line 3 of Gupta to reject claim 16. However, as discussed above, this section of Gupta does not disclose the presentation of a transcript to a human, much less a training transcript. Rather, as discussed above, Gupta's system is limited to the passing of a matter to a human directory assistance operator as a default procedure when the automated system of Gupta fails to produce a match with a probability score above a preset threshold. Moreover, there is no disclosure in Gupta that the passing of the matter to a human operator involves the passing of a selected match for verification.

For the foregoing reasons, Gupta fails to disclose each and every claim limitation recited in claims 16 and 28, and Applicants respectfully request that the Examiner withdraw the rejections of these claims.

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CONCLUSION

All objections and rejections have been addressed. In view of the above, the presently pending claims are believed to be in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. It is believed that any fees associated with the filing of this paper are identified in an accompanying transmittal. However, if any additional fees are required, they may be charged to Deposit Account 07-2347. To the extent necessary, a petition for extension of time under 37 C.F.R. 1.136(a) is hereby made, the fee for which should be charged against the aforementioned account.

Respectfully submitted,

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By 

Joel Wall

Attorney for Applicant

Reg. No.: 25,648

Verizon Corporate Services Group Inc.

c/o Christian Andersen

600 Hidden Ridge Drive,

Mailcode HQE03H14

Irving, TX 75038

(972) 718-4800

CUSTOMER NO.: 32127

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